

INDICATIONS:

- Acute status patients.
- Cardiopulmonary arrest.
- For hemodialysis fistula – life-threatening condition requiring immediate vascular access.

Approved for Infusion:

- Locally approved intravenous fluids.
- Medications – all medications approved for venous administration.

A pre-existing vascular access device (PVAD) is an indwelling catheter/device placed into one of the central veins, to provide vascular access for patients requiring long term intravenous therapy or hemodialysis.

TYPE OF CATHETERS:

• **External Silastic Indwelling Catheter/Device:**

- Broviac, Hickman and others: A silicone tube that is inserted into the distal superior vena cava or the right atrium usually via the cephalic vein. The catheter enters the skin through an incision in the chest. The line is kept heparinized and protected by an injectable cap.
- PICC Line: Peripherally inserted central catheter usually inserted into the right atrium via the antecubital vein.
- Hemodialysis shunt: A tube that diverts blood flow from an artery to a vein.

• **Internally Subcutaneous Infusion Ports:** NOT approved for access by prehospital personnel.

HEMODIALYSIS FISTULA: A surgically created arteriovenous connection used for hemodialysis. A subcutaneous fistula may be accessed in critical patients requiring immediate medication administration in life-threatening situations only.

Establish Patency:

- Discontinue any current IV solution.
- Use extreme caution when discontinuing a continuous IV infusion containing chemotherapy to minimize exposure.
- Apply clean gloves.
- Prepare 10 ml syringe, IV administration set and IV solution.
- Prep injection port with alcohol swab.
- If clamped, unclamp catheter.
- Slowly inject 5 ml normal saline into the injection port. If resistance is met when trying to inject, reclamp catheter and do not use.
- Aspirate.
 - If no resistance is met, inject remaining 5 ml of normal saline into catheter.
 - If resistance is met, reclamp catheter and do not use.

Administration of IV Fluids/Medications:

- Prepare IV solution, IV administration set, and 18 ga one (1) inch needle.
- Prep injection port with alcohol swab.
- Puncture injectable cap with needle.
- Adjust IV flow.
- Tape needle to catheter.
- Administer medications IVP via main line.
- Flush well with normal saline following each medication administered.

Accessing Hemodialysis Fistula:

- Prior to access, check site for bruits and thrills.
- Access fistula on venous side (side with weaker thrill in patient with a pulse).
- Inflate BP cuff around IV bag to just above patient's systolic BP to maintain flow of IV.
- If unsuccessful in accessing site, hold direct pressure over site for 10 minutes.

Complications:

- **Infection** - due to the location of the catheter, strict adherence to aseptic technique is crucial when handling a PVAD.
 - Use clean gloves at all times.
 - Prep injection port with alcohol swab prior to attaching IV tubing.
 - Obtain new supplies if equipment becomes contaminated.
- **Air embolism** - the PVAD provides a direct line into the circulation, therefore, the introduction of air into these devices can be hazardous.
 - Do not remove injection cap from catheter.
 - Do not allow IV fluids to run dry.
 - Always expel air from preload/syringe prior to administration.
- **Thrombosis** - a blood clot within the vascular system can be caused by improper handling and maintenance of the PVAD; dislodging a clot can cause a pulmonary embolus or vascular damage.
 - Follow medications with 5 ml normal saline.
 - Do not inject medications or fluids if resistance is met when establishing patency.
- **Catheter damage** - should damage occur to the external catheter, clamp immediately between the skin exit site and the damaged area to prevent air embolism or blood loss.
 - Use patient's clamp or padded hemostats if available or fold and tape tubing to clamp.
 - Always use a minimum of a 10 ml syringe to prevent catheter damage from excess infusion pressure.